PRAIRIE PIPING PLOVER CONSERVATION:

SECOND ANNUAL REPORT (1989)

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1.0 OVERVIEW

In Prairie Canada during 1989, Piping Plovers (*Charadrius melodus*) were once again subjected to drought conditions which appear to have influenced plover numbers, productivity and breeding habitat. Populations in Alberta and Saskatchewan remained unchanged from 1988, however Manitoba's population estimate is down. The Canadian portion of the Lake of the Woods (Figure 1) breeding population continues to remain relatively stable. Distribution surveys continued in Alberta, Saskatchewan and Ontario with little overall success in locating new sites with plovers. The breeding pair and production surveys were initiated this year and will be continued to provide a baseline for population and productivity information. The Canadian Piping Plover Recovery Plan received approval in fall 1989 and becomes the third approved recovery plan for an endangered or threatened species in Canada (Recovery of Endangered Wildlife in Canada Information Subcommittee 1989).

2.0 PIPING PLOVER RECOVERY TEAMS

2.1 PRAIRIE PIPING PLOVER RECOVERY TEAM

The second meeting of the Prairie Piping Plover Recovery Team (PPPRT) was held in Winnipeg, Manitoba on 25, 26 September 1989 with a field trip on the 27th. The team decided not to expand on the action plans identified in 1988 for this region but rather jurisdictions will annually present their annual and long term plans. Research needs were identified and plans for the 1990 field season were discussed. The team also identified six items of cooperative Canadian-American actions. These included

Figure 1. Locations of Prairie Canada and Great Lakes sites identified in the text.

concerns regarding development on or near Piping Plover wintering habitat, water regulation at Lake of the Woods and cooperation in carrying out the international census.

2.2 ATLANTIC PIPING PLOVER RECOVERY TEAM

The Atlantic Team met in Sackville, New Brunswick on 8 November 1989. The meeting included agency reports, discussion on the 1991 international survey and a proposed "double-clutching" project on the Magdalen Islands.

3.0 STATUS OF THE NATIONAL RECOVERY PLAN

The committee for the Recovery of Nationally Endangered Wildlife (RENEW) held its first meeting on 19 June 1989 in St. John's, Newfoundland. The minutes state that "The final draft Piping Plover Recovery Plan is in circulation to all jurisdictions. Each RENEW member is to write to the Chair of RENEW by 31 August stating approval or comments." Although the above comments came under the heading "Endorsement of Recovery Plans", there was no confirmation in the minutes that the plan was approved at the meeting. Then at the Western Wildlife Directors' meeting, 26, 27 September 1989 in Regina, "Approval for the Piping Plover Recovery Plan was requested and granted, with the understanding that the comments from the range jurisdictions would be incorporated in the final text" (Draft minutes of meeting).

The first annual RENEW report (Recovery of Nationally Endangered Wildlife Information Subcommittee 1989) is available and provides a good background on this strategies' objectives, priorities and

organization. The three species (Whooping Crane, Peregrine Falcon and Piping Plover) for which recovery plans have been approved, are highlighted in this report.

4.0 REGIONAL RESEARCH AND CONSERVATION ACTIVITIES

4.1 ALBERTA

Alberta Fish and Wildlife (AFW): AFW in conjunction with World Wildlife Fund (WWF) have initiated the drafting of an Alberta management plan for Piping Plovers (Wershler in prep.). The plan will prove to be the most extensive document on Piping Plovers in Alberta. The plan covers life history, status, population information and provides habitat management recommendations. A joint meeting of AFW, WWF and CWS on 16 October 1989 was held to provide input and comment on the draft prepared by Sweetgrass Consultants Ltd. AFW has also been preparing a public fact sheet on the Piping Plover which should be available in published form in 1990.

The Little Fish Lake population was the highest known to date with 49 adults and 18 young recorded during July productivity surveys (Wershler 1989). Earlier, in May, counts at Little Fish Lake ranged from 31-41 adults (Lord 1989) and at least 45 adults were seen on 13 June 1989 (J. P. Goossen unpubl. data).

Fifteen locations were examined for their suitablity for breeding Piping Plovers. One new breeding site was located at Killarney Lake, where 8-10 adults were seen on 17 May 1989. Only two of the remaining 14 sites examined had at least one plover present, for a total of 4-6 individuals at these latter sites situated

south of the Neutral Hills (Wershler 1989). In September, AFW, WWF and CWS met to discuss Piping Plover management for habitat at Little Fish Lake through fencing to protect habitat from cattle disturbance. Funding for the proposed fencing is to be through the Prairie for Tommorrow program. The plover population at Little Fish Lake will be monitored in 1990 by AFW. Also in 1990, distribution surveys will continue in Alberta and all historic and potential breeding sites are hoped to have been examined by the end of the 1990 season (S. Brechtel pers. comm.).

Canadian Wildlife Service: CWS continued its breeding ecology project in the Hanna area for the third year of this study. CWS also conducted surveys at eight sites in Alberta. The publication of a pamphlet on the Piping Plover by CWS (Goossen 1989) provides a source of information on this species to Canadians and other interested individuals.

4.2 SASKATCHEWAN

Saskatchewan Natural History Society (SNHS): The SNHS coordinated the distribution and production surveys carried out in Saskatchewan. The effort to determine the distribution and abundance of Piping Plovers in southern Saskatchewan continued into 1989 through the efforts of Johnson and Weichel Resource Management Consultants and Northern Environmental Consulting Services (NECS). Areas surveyed were the North Saskatchewan River from Paynton to Maymont, the Leask area, Blaine, Oscar, Foam, Fishing and Saline lakes. Only four plovers were located,

three along the North Saskatchewan River and one at Stonewall Lake. Surveys may have been carried out too late (June and early July) to detect plovers attempting to initiate breeding (Johnson and Sequin 1989). Additional areas are to be covered in 1990 under the direction of the Saskatchewan Wildlife Branch. Prairie Environmental Services Inc. carried out pair/production surveys in southern Saskatchewan during 1989. Only 43 adults were seen at Big Quill Lake which in a good year boasts over 300 plovers (Harris and Lamont 1989). More plovers may have been present given the difficulty in surveying such a large area as Big Quill Lake and not being able to access the entire lake. The Lake Diefenbaker population was 94 adults in 1989 (Harris and Lamont 1989), compared with the 1984 population high of at least 223 adults although the population was probably greater as only 63% of the eastern part of the lake was surveyed and in wide portions of the shore it was estimated that about 59% of the plovers were located (Harris et al. 1985. Saskatchewan Piping Plovers - 1984. Unpublished report prepared for the Saskatchewan Natural History Society and the Saskatchewan Parks and Renewable Resources Wildlife Branch. 106 pp. plus an appendix). At Redberry Lake, 19 adults and one young were located, however islands were not surveyed during the pair survey. The total adult population was estimated to be 27 based on the assumption that the same number of birds inhabiting islands in the lake on another occasion were present in 1989 (Harris and Lamont 1989). This population too has decreased since 1984 when 40 individuals were located (Harris et al. 1985).

Saskatchewan Wildlife Branch: George Bihun (pers. comm.), a Conservation Officer stationed at Uranium City, sighted and photographed on 1 July 1989, a single Piping Plover at the mouth of the Archibald River by Lake Athabasca. This is the third report of Piping Plovers for the Lake Athabasca region (see Adam (1984), Canadian Field-Naturalist 98:59-60 for the first and second records).

D. Hjertaas reports (in litt.) that because of "continued drought, the habitat enhancement project at Chaplin Lake was not monitored in 1989.

Monitoring the habitat enhancement work at Little Quill Lake showed one territorial plover approximately one half mile from the enhanced area and four non-territorial piping plover in the enhancement area. Low water levels at Little Quill Lake created a wider than normal beach, which undoubtedly helped attract these piping plover."

4.3 MANITOBA

Manitoba Wildlife Branch: Manitoba's population is estimated to have been 128 adults (PPPRT 1989 meeting minutes), down from last year's estimate of 200 adults. Production was poor in 1989 with only 23 young seen and 108 adults located (PPPRT 1989 meeting minutes). Rain, human disturbance and low water levels have been implicated as contributing causes to the low breeding effort.

All Terrain Vehicle use has been noted at several sites. The Manitoba Department of Natural Resources has been working toward establishing a Wildlife Sanctuary at Long Point on Lake

Winnipeg, currently considered to be possibly the prime nesting site for Piping Plovers in Manitoba (Koonz 1989).

4.4 ONTARIO

Ontario Ministry of Natural Resources: Leo Heyens (in litt.) and Anne Lambert (pers. comm.) reported that "An intensive study was conducted on the Ontario portion of Lake of the Woods from June 3 to August 2, 1989 to determine the current distribution and status of the piping plover. This study was conducted by Anne Lambert and Chris Risley under the supervision of Erica Nol, Trent University. Funding was obtained from the Endangered Species Recovery Fund and the Ontario Ministry of Natural Resources.

Four pairs and 2 single birds were found at two locations - Sable Islands and Windy Point. Two pairs produced young, of which at least 4, and more likely 7, fledged. At least 11 additional Piping Plovers seen in late June and July were thought to have dispersed from nearby breeding site in Minnesota, where widespread nesting failure occurred in 1989 (Maxson and Haws 1989).

The survey of other potential habitat (19 potential sites surveyed) on Lake of the Woods produced no sightings of plovers. Threats to the species on Lake of the Woods include gulls present at breeding areas, high water levels in June and July, recreational activity, and crows and mammalian predators. Management options include closure of nesting area(s) to recreationists, trapping mammalian predators, and changes to lake

level regulation to produce lower levels in June and July. Elsewhere in Ontario, one pair of plovers was observed at the Turkey Point Beach (Lake Erie) from May 7-15, one individual bird was observed at the tip of Long Point (Lake Erie) on May 6-7 and one individual bird was observed along the middle section of Long Point (traditional nesting site during the 1970's) from May 23 to June 2, 1989." Details of the Canadian Lake of the Woods study can be found in Lambert and Risely's (1989) report.

Canadian Wildlife Service: A survey of colonial waterbirds of some of the Great Lakes was carried out in 1989 through the joint efforts of CWS and USFWS (H. Blokpoel in litt., pers. comm.). P. Goossen arranged with the CWS coordinator, H. Blokpoel, to have forms made available to Canadian surveyers in the event Piping Plovers were encountered during the survey. Surveys of the Canadian parts of Lake Huron and Lake Superior in 1989 did not result in any Piping Plovers being found. The lower Great Lakes are to be surveyed in 1990 for colonial waterbirds and all Great Lakes in 1991 for Ciconiformes and two tern species (Anonymous. Inventory of colonial waterbirds of the Great Lakes guidelines and instructions for cooperators).

5.0 NORTH AMERICAN AND PRAIRIE CANADA PIPING PLOVER POPULATIONS :

Surveys and estimates of Piping Plover populations at various sites in North America in 1989 accounted for about 4000 adult plovers (Table 1). Readers should note that the 1989 data are not to be interpreted as estimates of all provincial and state plover

Table 1. North American Piping Plover breeding population regional estimates and counts (1986/87-1989).[1]

Location	Number of Adults 1986/87[2]	1988[3]	1989[4]
Prairie Canada	1152-1288	927	557-670
U. S. Great Plains	1364	1612	1459
Total Prairie and Plains	2516-2652	2539	2016-2129
Canadian Great Lakes	0	0	0
U.S. Great Lakes	34	31	30-32
Atlantic Canada	446	465	466
U. S. Atlantic	1044	1288	1418
Total Atlantic	1490	1753	1884
Total Canada	1598-1734	1392	1023-1136
Total U.S.	2442	2931	2907-2909
Total	4040-4176	4323	3930-4045

[1] Data for 1986/87 and 1988 represent regional estimates while the 1989 data reflects primarily counts at specific sites.

[2] Source - Haig et al. 1988. Great Lakes and Northern Great Plains Piping Plover Recovery Plan. United States Fish and Wildlife Service. Twin Cities, Minnesota. 160 pp. Values for the Great Lakes and Prairie Canada are for 1986.

[3] For sources see Goossen, J.P.(Submitted). Piping Plover research and conservation in Canada. Blue Jay.

[4] Source - S. Haig (compiler, unpubl. data).

populations as in most cases the data generally reflects counts made in 1989 and not regional estimates. Thus population data for 1986-7 and 1988 can not be directly compared with the 1989 information as the former years reflect geographical estimates. For example, the estimated Saskatchewan population is 500 for 1988 and 1989 (Table 2) however the count data indicates only 244 plovers for 1989. With this qualifier in mind it appears that the North American adult population in 1989 was over 4000 birds.

6.0 PAIR AND BROOD SURVEYS - PRAIRIE CANADA

In October 1988, the PPPRT agreed that monitoring Piping Plover populations in Prairie Canada was essential to a recovery program (PPPRT 1988 meeting minutes). The following sites were identified by the team as areas to be surveyed twice each year in order to monitor population changes and productivity:

Ontario: Sable Islands and Windy Point

Manitoba: West Shoal Lake, Riverton area (islands in Lake Winnipeg) and Long Point (Lake Winnipeg)

Saskatchewan: Big Quill Lake, South Saskatchewan River between Lake Diefenbaker and Saskatoon, Redberry Lake, Chaplin Lake and Lake Diefenbaker

Alberta: Chappice Lake, one of the Reflex Lakes, Dowling Lake, one of the Chain Lakes, Handhills Lake, north of Buffalo Lake (Rockland Bay and "Rider Lake" are surveyed).

CWS has established survey guidelines (Appendix 1) which promote the need to standardize plover surveys in Prairie Canada as previous surveys had been done at various times during the breeding season.

Table 2. Adult Piping Plover population estimate for Prairie Canada 1986, 1988 and 1989.

Province	Year 1986[1]	1988[2]	1989[3]
Alberta	300+	220+	220+
Saskatchewan	712-800	500	500
Manitoba	132-180	200	128
Ontario (Lake of the Woods)	8	7	10
Total Prairie Canada	1152-1288	927	858

[1] Source - Haig et al. 1988. Great Lakes and Northern Great Plains Piping Plover Recovery Plan. United States Fish and Wildlife Service, Twin Cities, Minnesota. 160 pp. and Wershler, C. In prep. Management plan for the Piping Plover in Alberta. Prepared for Alberta Fish and Wildlife and World Wildlife Fund Canada - Prairie for Tommorrow.

[2] Sources - Alberta (Wershler In prep.), Saskatchewan (W. Harris), Manitoba (W. Koonz), Ontario (Heyens, L. E. 1988. Piping Plover survey Sable Islands Provincial Nature Reserve. Piping Plover Survey Windy Point Lake of the Woods. Unpubl. Ontario Ministry of Natural Resources field report. 2 pp. plus a map and a bird checklist; Maxson et al. 1988. 1988 status and breeding summary of Piping Plovers and Common Terns at Lake of the Woods, Minnesota. Unpublished report, Minnesota Department of Natural Resources 8 pp. plus tables, a banding schedule and a figure; Lambert and Risely 1989).

[3] Sources - Alberta (Wershler's 1988 population estimate used for 1989 estimate), Saskatchewan (Harris's 1988 population estimate used for 1989 estimate), Manitoba (1989 PPPRT meeting minutes), Ontario (Lambert and Risely 1989).

The advantage of standardizing methods and survey windows is that it assists in striving for a consistent data set which can then be compared with data from other years. Although the data will not give a precise picture of populations and production, it will provide a baseline index which the PPPRT can use to evaluate the status of the plover in Prairie Canada and determine management needs, if and when required.

A standardized monitoring program for Prairie Canada was first carried out during 1989. Some surveys were done outside the suggested survey window for various reasons however the time difference was at most one to four days. Production of young in Prairie Canada was generally low (Table 3).

7.0 BANDING

Most of the 46 young banded in Prairie Canada in 1989 were captured in Saskatchewan (Table 4). No Piping Plovers were banded in Manitoba (W. Koonz pers. comm.) and no adults were banded in Prairie Canada. I am aware of only one 1989 wintering ground sighting of a Prairie Canada plover. For the third year in a row, one of the plovers banded at Handhills Lake in 1987, has returned to Marco Island, Florida where all three sub-populations of Piping Plovers (Great Plains/Prairie, Great Lakes and Atlantic) have been represented on this island by at least one individual (T. Below unpubl. data).

An interesting disperal record occurred in 1989. A colour-banded adult, originally banded in Manitoba, was observed and photographed in Michigan on the Upper Peninsula. This represents the first known documented case of a Prairie/Plains plover nesting in the Great Lakes

Table 3. Piping Plover monitoring program (1989) - breeding pair and production surveys.

Site surveyed	Breeding pair survey[a]	Production survey[b]	Source
Alberta			
Dowling Lake	15	13+14	J. P. Goossen
Chain Lakes site	11	2+4	Ibid
Handhills Lake	36	26+27	Ibid
Reflex Lakes site[c]	20	7+6	Ibid
Chappice Lake	15	10+2	Ibid
Rockland Bay	26	30+13	Ibid
"Rider Lake"[d]	11	3+6	Ibid
Little Fish Lake	38	49+18[e]	Lord (1989); Wershler (1989)
Saskatchewan			
Big Quill Lake	43	13+7	Harris et al. 1989
Lake Diefenbaker	94	56+27	Ibid
Redberry Lake	19[f]	7+1	Ibid
Manitoba			
Long Point area[g]	47	29+5	Koonz(1989)
West Shoal Lake	38	56+14	Ibid
Riverton island(s)	8	6+1	Ibid
Clandeboye Bay	4	3+1	Ibid
Grand Marais	6	10+2	Ibid
Ontario[h]			
Sable Islands	7	12(?)+4[i]	Lambert and Risley (1989)
Windy Point	3	0+0	Ibid

[a] Number of adults.

[b] Number of adults + young.

[c] Lake lies on Saskatchewan - Alberta border. Data reflects entire lake survey.

[d] Not official name (located 2 km northeast of Buffalo Lake).

[e] Results taken from two surveys: 2 July 1989 49+3 and 13 July 1989 34+18.

[f] Islands not surveyed during pair survey but during productivity survey (no plovers seen). Estimated population on islands during pair survey was four pairs based on previous work therefore estimated lake population was 27 adults (Harris et al. 1989).

[g] Includes spit on Long Point and spit to the southwest of Long Point.

[h] As daily counts were not summarized in Lambert and Risely (1989)

I have interpreted the data in the Lambert and Risley (1989) report to fit the survey windows stated in Appendix 1.

i At least five adults seen were not Ontario residents but colour-banded plovers presumably from the Minnesota Lake of the Woods population, four to six were Ontario residents and a transient bird. A second brood, not included in the count, consisting of three young was seen on 18 July 1989.

Table 4. Number of Piping Plovers banded during 1989 in Prairie Canada.

Province	Site	Young	Source
Alberta	Dowling Lake	10	J. P. Goossen
	Handhills Lake	11	J. P. Goossen
Saskatchewan	Big Quill Lake	7	W. Harris
	Lake Diefenbaker	16	W. Harris
	Little Quill Lake	2*	H. L. Dickson
Total		46	

* Flying young (H. L. Dickson pers. comm.), not necessarily raised at Little Quill Lake.

region (Allen 1989). The implications of this record are important as it suggests that this small Great Lakes population is not totally dependent on its own productivity to maintain itself but can be augmented by another population.

The USFWS and Platte River Whooping Crane Trust have analysed information on leg injury as a result of banding and flagging Piping Plovers. At least one USFWS staff member feels a moratorium on the banding of Piping Plovers should go into effect for the summer of 1990. The injuries are real however the causes and the issue have not been resolved yet.

8.0 ERRATUM

The percent of young confirmed returning to the Hanna area in Alberta was 1.7% instead of 0.02% as stated in last year's annual report (Goossen, J.P. 1989. Prairie Piping Plover conservation: first annual report (1988). Unpublished Canadian Wildlife Service report. 19 pp.).

9.0 FUTURE EVENTS

9.1 INTERNATIONAL CENSUS

The first international census of Piping Plovers will take place in 1991 on both the breeding and wintering grounds. All provincial agencies planning to be involved with the Prairie Canada portion of the survey should ensure that funding is adequate for their jurisdiction, all survey sites have been identified and contractors or staff assigned to carry out the count. Further discussion will ensue at the fall meeting of the

PPPRT in Edmonton where the census will be the major topic of discussion.

10.0 NEW INITIATIVES

10.1 PROPOSED GRADUATE STUDY:

At the September 1989 meeting of the PPPRT, a research need discussed by the team focussed in on investigating Piping Plover habitat, foraging and food. To that end, CWS sent out a request to 21 Canadian universities and three ornithological newsletters soliciting a response to apply for this study which is to be done through the University of Saskatchewan in cooperation with CWS.

11.0 FUNDING SOURCES

11.1 ENDANGERED SPECIES RECOVERY FUND

At least $70,500 was allotted to Piping Plover projects in Canada through this fund which is sponsored by Environment Canada, World Wildlife Fund and the Canadian National Sportsmen's Shows. The above funding support was given to two projects in Quebec and one each in Ontario, New Brunswick and Manitoba (E. Agnew *in litt.*). A funding request for distribution and monitoring surveys in Saskatchewan was unsuccessful and no funds were received from the Fund in 1989 for a request to contribute to distribution surveys in Alberta.

12.0 AGENCY SUPPORT

Over a dozen agencies and firms were involved with various aspects

of Piping Plover work and these are listed in Table 5.

13.0 REPORTS AND PUBLICATIONS

An extensive bibliography has been prepared by Lewis (1990). Recent reports and publications not in that bibliography are listed as follows:

13.1 Prairie Canada

Allan. T. A. 1989. Nesting ecology and management of the Piping Plover in the eastern Upper Peninsula of Michigan, 1989. Unpublished report submitted to The Office of Nongame and Endangered Wildlife, Michigan Department of Natural Resources. 8 pp. plus acknowlegments and tables.

Egan, M. 1989. Endangered species in Canada. Canadian Wildlife Service pamphlet. 6 pp.

Goossen, J. P. 1989. Piping Plover. Canadian Wildlife Service Hinterland Who's Who series. 4 pp.

Harris, W. C. and S. M. Lamont. 1989. Saskatchewan Piping Plover surveys - 1989 Big Quill Lake, Lake Diefenbaker and Redberry Lake. Unpublished report prepared for the Saskatchewan Natural History Society. 17 pp. plus an appendix and maps.

Johnson, R. H. and A. C. Sequin. 1989. 1989 Piping Plover distribution and monitoring survey of three regions in south-central Saskatchewan. Unpublished report prepared for the Saskatchewan Natural History Society. 22 pp. plus appendices.

Koonz, W. 1989. Manitoba's 1989 Piping Plover progress report. Unpublished Manitoba Natural Resources Department report. 3 pp.

Lambert, A. B. and C. J. Risley 1989. An investigation of the status of the Piping Plover at Lake of the Woods, Ontario. Unpublished report prepared for the Endangered Species Recovery Fund and the Ontario Ministry of Natural Resources. 39 pp. plus appendices.

Lord, S. 1989. Piping Plover surveys at Little Fish Lake. Unpublished report for Canadian Wildlife Service, Edmonton. 2 pp.

Maxson, S. J. and K. V. Haws. 1989. 1989 status and breeding summary of Piping Plovers and Common Terns at Lake of the Woods, Minnesota. Unpublished Minnesota Department of Natural Resources report.

Table 5. Agencies involved in Piping Plover research and/or conservation in Prairie Canada during 1989.

Agency	Type of involvement	Type of support[a]
1. Alberta Fish and Wildlife	Management planning/ survey/recovery team	Funding/Staff
2. Canadian Wildlife Service	Research/surveys/ recovery team/management planning/media/ public education	Funding/Staff
3. Johnson and Weichel Resource Management Consultants	Surveys	Contractor
4. Manitoba Parks Branch	Protection/public education	Staff
5. Manitoba Wildlife Branch	Surveys/recovery team/ management planning	Funding/ Staff
6. Northern Environmental Consulting Services	Surveys	Contractor
7. Ontario Ministry of Natural Resources	Surveys/recovery team	Funding/Staff
8. Prairie Environmental Services Inc.	Surveys	Contractor
9. Saskatchewan Natural History Society	Surveys	Funding /coordination
10. Saskatchewan Wildlife Branch	Monitoring/recovery team	Staff member
11. Sweetgrass Consultants Ltd.	Management plan/surveys	Consultant
12. Trent University	Surveys/administration	Researchers
13. United States Fish and Wildlife Service	Recovery team - observer	Staff member
14. World Wildlife Fund[b]	Management planning	Funding/Staff member

[a]Direct or indirect involvement. Funding = financial support and/or services in kind.

[b]Includes Prairie for Tomorrow program in Alberta and Endangered Species Recovery Fund which funded Piping Plover work in Manitoba and Ontario.

Recovery of Nationally Endangered Wildlife Information Subcommittee. 1989. RENEW annual report 1989. 12 pp. plus two appendices and French version of report.

Wershler, C. 1989. Piping Plover surveys in Alberta, 1989. Unpublished report prepared for Alberta Fish and Wildlife. 16 pp.

Wershler, C. In preparation. Draft management plan for the Piping Plover in Alberta. Unpubl. draft prepared for Alberata Fish and Wildlife and World Wildlife Fund Canada - Prairie for Tommorrow.

13.2 Atlantic Canada

Lewis, H. 1990. Piping Plover bibliography. Draft #8. Canadian Parks Service. Atlantic Region, Halifax. 24 pp.

Appendix 1

PIPING PLOVER PAIR AND BROOD SURVEY METHODOLOGY

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In order to properly evaluate annual and regional plover population trends and productivity there is a need to standardize pair and brood survey methods at all survey sites in Prairie Canada. Please follow the following guidelines when conducting these surveys.

SURVEY DATES

1. Pair survey:

   The survey period will be from 25 May through 7 June.

   Surveys are to be done from about mid to late incubation for most first nests. Renests are bound to be included during this time.

2. Brood survey:

   The survey period will be defined as from 3 July through 11 July which will coincide approximately with 20 days from the predicted peak hatching date. Use your judgment to estimate peak plus 20 days but stay within the given dates.

PAIR AND BROOD SURVEY METHODS:

The survey route will vary according to habitat situations, however try

to walk consistently or drive parallel to and about 60 - 70 % of the way between the water's edge and the vegetation line at the back of the beach. You should therefore be closer to the vegetation line than the water (Fig. 1). You should do some weaving besides just walking a straight line. Periodically going close to the shore or vegetation line and scanning for plovers will contribute to good survey coverage. Plovers can be found feeding near the water's edge and near the vegetation line as well as nesting near the vegetation line, so all beach area must be covered. If the beach is greater than 100 m, two or more parallel passes will have to be made in order to cover the complete area (Fig.1).

For river surveys, observers should walk around islands and sandbars, noting any plovers over the entire area.

Each site will be monitored by one or more observer(s). If two or more people are surveying, they should not be working the same area. The surveyers should split up and do different portions of the same site. If a larger beach section is surveyed by two or more observers they should do so simultaneously and each cover a separate area from the other observer. The <u>same observer</u> should do the same site, or stretch of shore, for both pair and brood counts for consistency. Also use the same method of survey for each site (e.g. All Terrain Vehicle, walking, boat). Ideally, the same observer and method should be used every time and every year at a given site.

Avoid rainy days and/or days with extremely hot or cold temperatures.

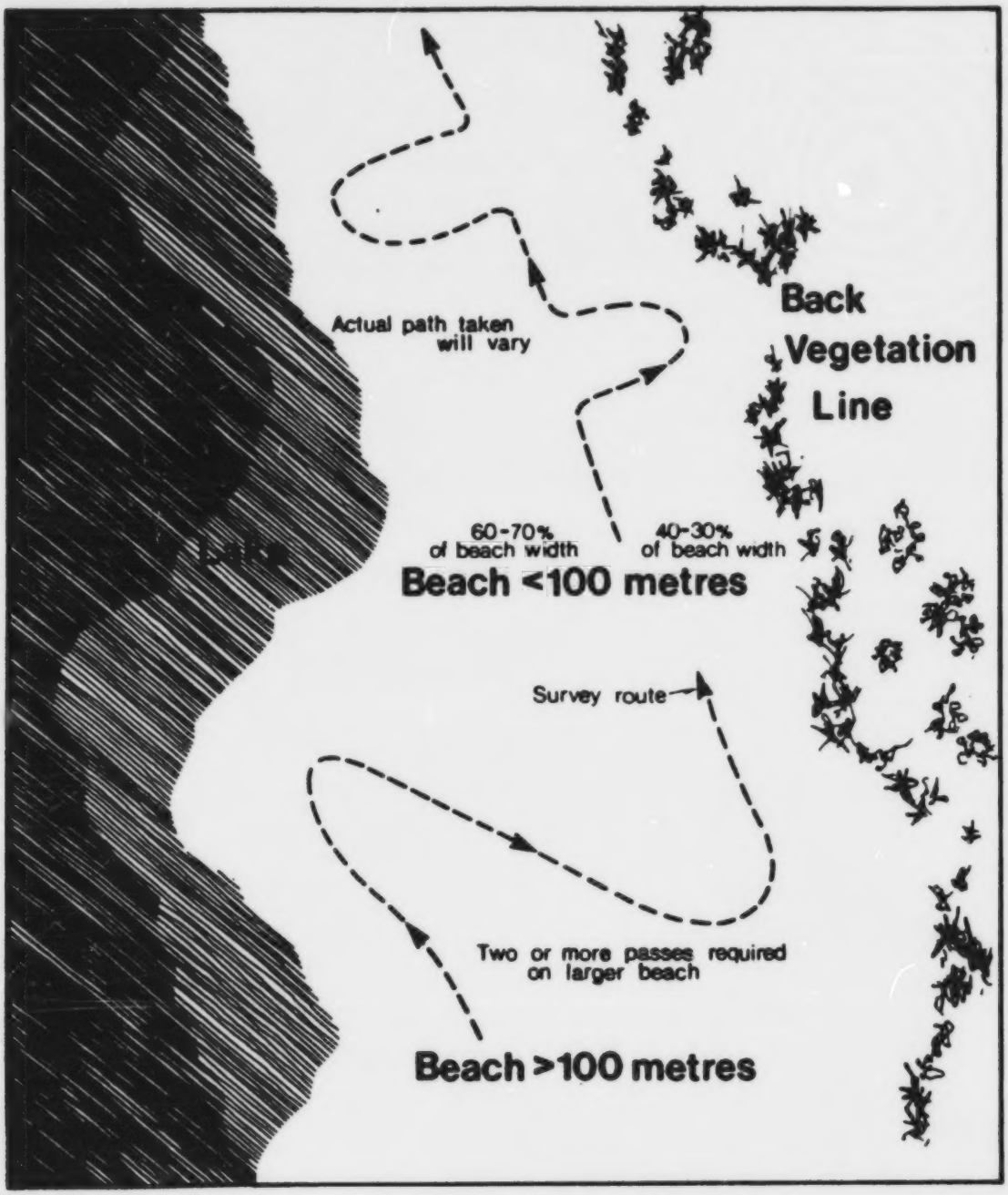

Figure 1. Piping Plover survey methods.

DATA TO BE COLLECTED FOR EACH PAIR SURVEY AND BROOD SURVEY:

1. Survey date and name of site.
2. Name(s) of observer(s).
3. Weather during survey and habitat description of the survey site.
4. Method of surveying i.e. walking, All Terrain Vehicle, canoe.
5. Record each observation of a plover(s) under a separate sighting number (see Table 2 on page 27).
6. Record all Piping Plover adults and juveniles encountered according to format outlined as follows in Table 1:

Table 1. Format for recording adult and young Piping Plovers.

Adults + young		Breeding Status[1]
Breeding pair	2+0	T
Nonbreeding pair	2+0	NT
Single adult	1+0	T or NT
Groups (3 or more adults)	4+0, 7+0 etc.	NT
Family	2+3, 1+2 etc.	T
Single or more juvenile(s) e.g.	0+1, 0+6 etc.	NT
Mixed age group	4+6, 9+2 etc.	NT

[1] T= Territorial
NT= Nonterritorial

7. Map each plover observation, indicating numbers and age (as per above format in point no. 6), according to sighting number and with the aid of an airphoto or topographical map (See Fig. 2 for an example).
8. Record nests and number of eggs/young found and map locations of nests but <u>do not go out of your way to look for nests</u>. Stay about 10 m away from the nest and use your binoculars to check for nest contents.
9. Identify area surveyed with the aid of an airphoto or map (see Fig. 2).

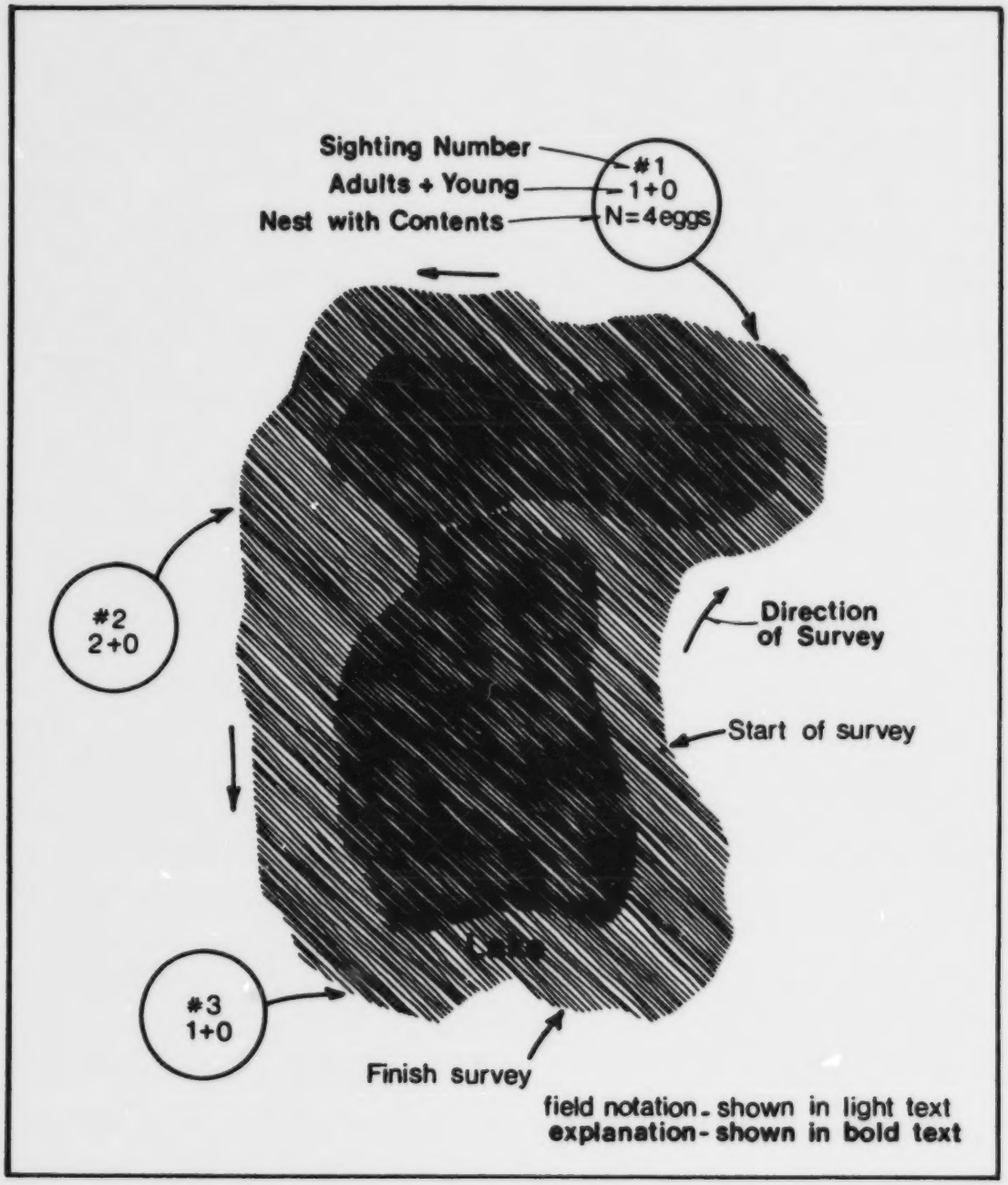

Figure 2. Information to be put on survey maps.

DEFINITIONS

STATUS DEFINITIONS

Territorial plover:

Any plover exhibiting

- defense behaviour (chases, threat postures, flight display),
- or courtship behaviour (nest scraping, mounting, copulation, courtship displays),
- or giving a predator distraction display,
- or giving persistent alarm calls while attempting to lead the surveyer away from an area.
- or other behaviour(s) suggesting territoriality

Nonterritorial plover:

Any plover not exhibiting any of the above territorial behaviours. Nonterritorial plovers do not vocalize much and may usually be found in feeding areas. Note some of the latter birds may be territorial birds which have left their territory to feed, so careful observations are required. If you find plovers feeding in nonbreeding habitat (e.g. seepage areas, mudflats) that are nonterritorial, please make a special note of this situation so that this information is available if the data needs to be corrected for double counting.

PAIR COUNTS:

1. Breeding pair - adult pair exhibiting territorial behaviour,
   - adult incubating on a nest or flushed from a nest.
2. Nonbreeding pair - two nonterritorial adults.
3. Single bird - a territorial or nonterritorial adult. Do not count as a

pair as it may be unmated.

4. Group - nonterritorial adults consisting of three or more individuals.

BROOD COUNTS

1. For definitions of breeding pairs, nonbreeding pairs, singles, adult groups - use those definitions given under Pair Counts.
2. Family - one or two adults plus one or more young. Note that generally the female abandons family in July.
3. Single or more juvenile(s) - Identify as zero adults plus one or more juvenile(s). For example, 0+4, no adults and four young.
4. Mixed Age Group - A group of three or more plovers, having a minimum of one adult and one young, with no evidence that the group is a family.

REPORT

Please forward a brief two or three page report on the findings of the pair and brood surveys by 30 September to:

J. Paul Goossen
Team Leader
Prairie Piping Plover Recovery Team
Canadian Wildlife Service
Room 210 4999 98 Ave
Edmonton, Alberta
T6B 2X3

I would appreciate if your report would include an abstract, methods, results, discussion and literature cited. Also illustrate on a map for each site, numbers, age (adults or/and young), sighting number and survey route as indicated in Fig. 2.

For the results section please include two tables (one for the pair survey and one for the brood survey) for each site, which summarizes your field notes in the following fashion (this is an example of hypothetical field results):

Table 2. Survey results for site A.

Survey date: 29 May 1989
Observer(s): C. DeBird
Weather: 60% overcast, calm, temp. 20C
Habitat: lake 80% dry, vegetation encroachment evident

Method: 50% walking, 50% All Terrain Vehicle
Coverage: 80% of lake shore

Sighting No.	Singles	Breeding* Pairs	Families	Adult Groups	Juveniles	Groups	Comments
1		1+0					ad. incub.
2		2+0					T
3	1+0						T
4	1+0						NT
5				5+0			NT
6			2+3				T
7			1+1				T
8					0+5		NT
9						5+6	NT
etc.							

* Breeding pairs without young. For total breeding pairs on a site add number of breeding pairs and number of families.

Portions of the survey methods have been adapted from Appendix 5 in Haig et al. 1988. (Great Lakes & Northern Great Plains Piping Plover Recovery Plan) while Cairns' study (1982, Wilson Bull. 94:531-545) was consulted regarding plover behaviour. Format for data presentation was influenced by approach of Harris et al. (1985) in their report entitled Saskatchewan Piping Plovers - 1984.